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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/719,234	12/11/2000	Bin Zhu	51017-62768-	6208

7590            07/23/2002

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[REDACTED] EXAMINER

CHANAY, CAROL DIANE

[REDACTED] ART UNIT      [REDACTED] PAPER NUMBER

1745

DATE MAILED: 07/23/2002

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Please find below and/or attached an Office communication concerning this application or proceeding.

T-D

<b>Office Action Summary</b>	Application No.	Applicant(s)	
	09/719,234	ZHU, BIN	
	Examiner Carol Chaney	Art Unit 1745	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) Responsive to communication(s) filed on 11 December 2000.
- 2a) This action is FINAL.                    2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) Claim(s) 1-5 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) Claim(s) \_\_\_\_\_ is/are allowed.
- 6) Claim(s) 1-5 is/are rejected.
- 7) Claim(s) \_\_\_\_\_ is/are objected to.
- 8) Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on \_\_\_\_\_ is/are: a) accepted or b) objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) The proposed drawing correction filed on \_\_\_\_\_ is: a) approved b) disapproved by the Examiner.  
If approved, corrected drawings are required in reply to this Office action.
- 12) The oath or declaration is objected to by the Examiner.

#### Priority under 35 U.S.C. §§ 119 and 120

- 13) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) All b) Some \* c) None of:
1. Certified copies of the priority documents have been received.
  2. Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).  
a) The translation of the foreign language provisional application has been received.
- 15) Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

#### Attachment(s)

- 1) Notice of References Cited (PTO-892)                    4) Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_ .
- 2) Notice of Draftsperson's Patent Drawing Review (PTO-948)                    5) Notice of Informal Patent Application (PTO-152)
- 3) Information Disclosure Statement(s) (PTO-1449) Paper No(s) 4.                    6) Other: \_\_\_\_\_

***Specification***

The specification is objected to as failing to provide proper antecedent basis for the claimed subject matter. See 37 CFR 1.75(d)(1) and MPEP § 608.01(o). Correction of the following is required: The specification does not appear to provide support for the a ceramic ceria salt composite electrolyte. Support in the specification for "a high sulphur tolerant CFC device, acting as a pre-gas treatment station" as claimed in claim 4 does not appear to be found in the specification as filed.

***Claim Rejections - 35 USC § 112***

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 1-5 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In claim 1, the term "ceramic ceria salt composite" is not defined in the claim or specification, and is not a defined term of art. Therefore, the materials encompassed by this term are indefinite.

Regarding claims 2, 3, and 5, the phrases "such as", "preferably", "e.g." and "typically" render the claims indefinite because it is unclear whether the limitations following the phrases are part of the claimed invention. See MPEP § 2173.05(d).

***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

To the extent to which they are understood, claims 1-3 and 5 are rejected under 35 U.S.C. 102(b) as being anticipated by Kunz et al., US Patent 3,775,185.

Kunz et al. disclose fuel cells which use cerium oxide mixed with fused eutectic mixtures of  $Tl_2O/TINO_3/AgNO_3$  as an electrolyte. (Note column 4, lines 24-35 and column 2, lines 37-41.) The electrolyte described by Kunz et al. is considered a "ceramic ceria salt composite".

With regards to claim 2, the electrolyte described by Kunz et al. is described as a specific ion conductor for  $TIO^-$  ions. (Note column 2, lines 15-17.)

With regards to claims 3 and 5, Kunz et al. disclose fuel cell electrodes include comprise various metal oxides, and lithiated nickel structures. (Column 3, lines 19-41.) The disclosure of Kunz et al. is considered to encompasses the "binary oxides" recited in applicant's claims.

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and

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the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kunz et al. in view of Sokolov, *Ann. secteur anal. phys-chim. Inst. chim gen. (U.S.S.R.)* (1938), 11, 237-51. (Abstract only).

As discussed above, Kunz et al. disclose applicant's invention essentially as claimed, with the exception that Kunz et al. do not disclose sulfate salts as part of the fuel cell electrolyte. Sokolov discloses properties of salt mixtures containing silver and thallium nitrate and sulfate salts. The melting point of a salt mixture will depend upon the composition. It would have been obvious to one of ordinary skill in the art to choose a sulfate/nitrate salt mixture disclosed by Sokolov in the invention disclosed by Kunz et al. in order to obtain an electrolyte with a specific melting point.

### ***Conclusion***

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Berger et al., US Patent 3,497,389; Berger et al., US Patent 3,489,610 disclose electrochemical cells with inorganic oxide separators.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Carol Chaney whose telephone number is (703) 305-3777. The examiner can normally be reached on Mon - Fri 8:00am-4:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Patrick Ryan can be reached on 703-308-2383. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-9310 for regular communications and (703) 872-9311 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0661.



Carol Chaney  
Primary Examiner  
Art Unit 1745

cc  
July 2, 2002